Morphology of Uvularia.—Miss ALDEN[27] has investigated the life history of *Uvularia sessilifolia*, chiefly as to the sequence of events, presumably in the region of New York City. The archesporium of the microsporangium (3–6 cells) becomes differentiated the first of August, at which time also the division into parietal and sporogenous series occurs. Mature microspore mother cells were found in the middle of September, and the tetrad divisions occurred in October, so that the winter is passed with the microspores fully formed. In the latter part of the following April the division of the microspore nucleus into generative and tube nuclei occurs, and probably the former divides after the shedding of pollen. The archesporium of the megasporangium is differentiated early in March (seven months later than the microsporangiate archesporium), and consists of a single hypodermal cell which does not cut off a parietal cell. The reduction division occurs the last week of April.—J. M. C.

Spermogonium and fertilization in Collema.—Miss BACHMANN[28] has investigated *Collema pulposum* as to the nature of the spermatia and its bearing on the question of functional sexuality among the Ascomycetes. The spermatia of this species are not born in spermogonia, but few in number upon a hypha below the surface of the thallus, being completely imbedded and never set free. The carpogonia resemble those of other lichens in general structure, but the long end cell of the trichogyne does not grow toward the surface of the thallus, but more or less horizontally within the thallus toward the region of the spermatia. The attraction of the spermatia for the trichogynes is shown by the convergence of the latter about a group of spermatia. The spermatium fuses with the trichogyne to which it has become attached, and the subsequent changes are those that have been described. It seems evident that in this case the spermatia and trichogyne are functional.—J. M. C.

Seedling anatomy of Sympetalae.—LEE[29] has investigated the seedling anatomy of Convolvulaceae, Polemoniaceae, Hydrophyllaceae, Boraginaceae, Labiatae, Solanaceae, Scrophulariaceae, Bignoniaceae, and Acanthaceae. The extent of the transition region is related in a general way to the size of the seedlings, which varies greatly in different species. In the smaller seedlings the transition region is short, and the rearrangements are concluded in the upper part of the hypocotyl; while in the larger seedlings the transition region is very extended. Cotyledonary tubes occur in members of all the families,

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[27] ALDEN, ISABEL, A contribution to the life history of *Uvularia sessilifolia*. Bull. Torr. Bot. Club **39**:439–446. *pls. 34, 35*. 1912.

[28] BACHMANN, FREDA M., A new type of spermogonium and fertilization in *Collema*. Ann. Botany **26**:747–760. *pl. 69*. 1912.

[29] LEE, E., Observations on the seedling anatomy of certain Sympetalae. I. Tubiflorae. Ann. Botany **26**:727–746. *pl. 68*. 1912.

but their presence seems to have nothing to do with the transition phenomena. The prevailing type of transition, present in all the smaller seedlings, is VAN TIEGHEM'S type 3. Internal phloem was present in all the Solanaceae and Convolvulaceae examined, with a few possible exceptions.—J. M. C.

A disease of sugar cane.—The sugar plantations of Hawaii have suffered greater loss from an endemic disease called "iliau" than from all other fungous diseases combined. LYON, now at the Experiment Station of the Hawaiian Sugar Planters' Association, has investigated the disease[30] and finds that the causal organism is a new species of *Gnomonia* (*G. iliau*), the imperfect stage being *Melanconium*. The *Gnomonia* form is infrequent, while the *Melanconium* form is of constant occurrence. It is a leaf-sheath disease, and its attack makes it a disease of young shoots only. The entrance is effected through the leaf-bases inserted on the stem below the soil surface, and thence it extends upward and inward. The tightly packed roll of leaf-sheaths surrounding the young stem-tip is cemented into a rigid cone, so that it is impossible for the stem-tip to escape.—J. M. C.

Diaphragms in air passages.—LE BLANC[31] has reviewed the literature on the diaphragms occurring in various aquatic plants and examined other species in order to discover the origin, manner of development, and function of these organs. One of the most peculiar features of these plates is the occurrence of perforations in the form of peculiar intercellular spaces caused by the diminution of the cell contents and the consequent contraction of the cells. These perforations permit free gas exchange and yet do not greatly detract from the rigidity of the diaphragms. The diaphragms do not seem to be due to any reaction toward the aquatic medium in which the plants develop, and appear to be a portion of the mechanical tissue system occasionally containing some reserve food materials.—GEO. D. FULLER.

Algae of Colorado.—ROBBINS[32] has published a list of the algae of Colorado, which brings together all the recorded species and the additions made by the author during three years of investigation. The result is a list of 143 species, including 38 Cyanophyceae and 105 Chlorophyceae. *Spirogyra*, with 14 species, is the largest genus.

The same author[33] has investigated also the occurrence of algae in certain

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[30] LYON, H. L., Iliau, an endemic cane disease. Exper. Sta. (Hawaii) Bull. 11. pp. 32. *figs.* 10. *pl.* 1 (colored). 1912.

[31] LE BLANC, M., Sur les diaphragmes des canaux aérifères des plantes. Rev. Gén. Bot. **24**: 233–243. 1912.

[32] ROBBINS, W. W., Preliminary list of the algae of Colorado. Univ. Colorado Studies **9**: 105–118. 1912.

[33] ———, Algae in some Colorado soils. Col. Agric. Exper. Sta. Bull. 184. pp. 24–36. *pls.* 4. 1912.